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SEQUENCE LISTING

<110> EVANS, RONALD M.
CHEN, J. DON
ORDENTLICH, PETER
DOWNES, MICHAEL R.

<120> FAMILY OF TRANSCRIPTIONAL CO-REPRESSORS THAT INTERACT
WITH NUCLEAR HORMONE RECEPTORS AND USES THEREFOR

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<140> 09/522,753

<141> 2000-03-10

<150> 08/522,726

<151> 1995-09-01

<160> 52

<170> PatentIn Ver. 2.1

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<213> Homo sapiens

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Pro Arg Tyr Pro Pro His Ser Leu Ser Tyr Pro Val Gln Ile Ala Arg
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Thr His Thr Asp Val Gly Leu Leu Glu Tyr Gln His His Ser Arg Asp
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Tyr Ala Ser His Leu Ser Pro Gly Ser Ile Ile Gln Pro Gln Arg Arg
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Arg Pro Ser Leu Leu Ser Glu Phe Gln Pro Gly Asn Glu Arg Ser Gln
  65                      70                      75                      80

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Glu Leu His Leu Arg Pro Glu Ser His Ser Tyr Leu Pro Glu Leu Gly
      85                      90                      95

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Lys Ser Glu Met Glu Phe Ile Glu Ser Lys Arg Pro Arg Leu Glu Leu
  100                      105                      110

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Leu Pro Asp Pro Leu Leu Arg Pro Ser Pro Leu Leu Ala Thr Gly Gln
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Pro Ala Gly Ser Glu Asp Leu Thr Lys Asp Arg Ser Leu Thr Gly Lys
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Leu Glu Pro Val Ser Pro Pro Ser Pro Pro His Thr Asp Pro Glu Leu
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Glu Leu Val Pro Pro Arg Leu Ser Lys Glu Glu Leu Ile Gln Asn Met
165 170 175

Asp Arg Val Asp Arg Glu Ile Thr Met Val Glu Gln Gln Ile Ser Lys
180 185 190

Leu Lys Lys Lys Gln Gln Gln Leu Glu Glu Glu Ala Ala Lys Pro Pro
195 200 205

Glu Pro Glu Lys Pro Val Ser Pro Pro Pro Ile Glu Ser Lys His Arg
210 215 220

Ser Leu Val Gln Ile Ile Tyr Asp Glu Asn Arg Lys Lys Ala Glu Ala
225 230 235 240

Ala His Arg Ile Leu Glu Gly Leu Gly Pro Gln Val Glu Leu Pro Leu
245 250 255

Tyr Asn Gln Pro Ser Asp Thr Arg Gln Tyr His Glu Asn Ile Lys Ile
260 265 270

Asn Gln Ala Met Arg Lys Lys Leu Ile Leu Tyr Phe Lys Arg Arg Asn
275 280 285

His Ala Arg Lys Gln Trp Lys Gln Lys Phe Cys Gln Arg Tyr Asp Gln
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Leu Met Glu Ala Leu Glu Lys Lys Val Glu Arg Ile Glu Asn Asn Pro
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Arg Arg Arg Ala Lys Glu Ser Lys Val Arg Glu Tyr Tyr Glu Lys Gln
325 330 335

Phe Pro Glu Ile Arg Lys Gln Arg Glu Leu Gln Glu Arg Met Gln Ser
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Arg Val Gly Gln Arg Gly Ser Gly Leu Ser Met Ser Ala Ala Arg Ser
355 360 365

Glu His Glu Val Ser Glu Ile Ile Asp Gly Leu Ser Glu Gln Glu Asn
370 375 380

Leu Glu Lys Gln Met Arg Gln Leu Ala Val Ile Pro Pro Met Leu Tyr
385 390 395 400

Asp Ala Asp Gln Gln Arg Ile Lys Phe Ile Asn Met Asn Gly Leu Met
405 410 415

Ala Asp Pro Met Lys Val Tyr Lys Asp Arg Gln Val Met Asn Met Trp
420 425 430

11

Ser Glu Gln Glu Lys Glu Thr Phe Arg Glu Lys Phe Met Gln His Pro
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Lys Asn Phe Gly Leu Ile Ala Ser Phe Leu Glu Arg Lys Thr Val Ala
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Glu Cys Val Leu Tyr Tyr Tyr Leu Thr Lys Lys Asn Glu Asn Tyr Lys
465 470 475 480

Ser Leu Val Arg Arg Ser Tyr Arg Arg Arg Gly Lys Ser Gln Gln Gln
485 490 495

Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Pro Met
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Pro Arg Ser Ser Gln Glu Glu Lys Asp Glu Lys Glu Lys Glu Lys Glu
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Ala Glu Lys Glu Glu Glu Lys Pro Glu Val Glu Asn Asp Lys Glu Asp
530 535 540

Leu Leu Lys Glu Lys Thr Asp Asp Thr Ser Gly Glu Asp Asn Asp Glu
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Lys Glu Ala Val Ala Ser Lys Gly Arg Lys Thr Ala Asn Ser Gln Gly
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Arg Arg Lys Gly Arg Ile Thr Arg Ser Met Ala Asn Glu Ala Asn Ser
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Glu Glu Ala Ile Thr Pro Gln Gln Ser Ala Glu Leu Ala Ser Met Glu
595 600 605

Leu Asn Glu Ser Ser Arg Trp Thr Glu Glu Glu Met Glu Thr Ala Lys
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Lys Gly Leu Leu Glu His Gly Arg Asn Trp Ser Ala Ile Ala Arg Met
625 630 635 640

Val Gly Ser Lys Thr Val Ser Gln Cys Lys Asn Phe Tyr Phe Asn Tyr
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Lys Lys Arg Gln Asn Leu Asp Glu Ile Leu Gln Gln His Lys Leu Lys
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Met Glu Lys Glu Arg Asn Ala Arg Arg Lys Lys Lys Lys Ala Pro Ala
675 680 685

Ala Ala Ser Glu Glu Ala Ala Phe Pro Pro Val Val Glu Asp Glu Glu
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Met Glu Ala Ser Gly Val Ser Gly Asn Glu Glu Glu Met Val Glu Glu
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Ala Glu Ala Leu His Ala Ser Gly Asn Glu Val Pro Arg Gly Glu Cys
725 730 735

12

Ser Gly Pro Ala Thr Val Asn Asn Ser Ser Asp Thr Glu Ser Ile Pro
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Ser Pro His Thr Glu Ala Ala Lys Asp Thr Gly Gln Asn Gly Pro Lys
755 760 765

Pro Pro Ala Thr Leu Gly Ala Asp Gly Pro Pro Pro Gly Pro Pro Thr
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Pro Pro Arg Arg Thr Ser Arg Ala Pro Ile Glu Pro Thr Pro Ala Ser
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Glu Ala Thr Gly Ala Pro Thr Pro Pro Ala Pro Pro Ser Pro Ser
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Ala Pro Pro Pro Val Val Pro Lys Glu Glu Lys Glu Glu Glu Thr Ala
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Ala Ala Pro Pro Val Glu Glu Gly Glu Glu Gln Lys Pro Pro Ala Ala
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Glu Glu Leu Ala Val Asp Thr Gly Lys Ala Glu Glu Pro Val Lys Ser
850 855 860

Glu Cys Thr Glu Glu Ala Glu Glu Gly Pro Ala Lys Gly Lys Asp Ala
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Glu Ala Ala Glu Ala Thr Ala Glu Gly Ala Leu Lys Ala Glu Lys Lys
885 890 895

Glu Gly Gly Ser Gly Arg Ala Thr Thr Ala Lys Ser Ser Gly Ala Pro
900 905 910

Gln Asp Ser Asp Ser Ser Ala Thr Cys Ser Ala Asp Glu Val Asp Glu
915 920 925

Ala Glu Gly Gly Asp Lys Asn Arg Leu Leu Ser Pro Arg Pro Ser Leu
930 935 940

Leu Thr Pro Thr Gly Asp Pro Arg Ala Asn Ala Ser Pro Gln Lys Pro
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Leu Asp Leu Lys Gln Leu Lys Gln Arg Ala Ala Ala Ile Pro Pro Ile
965 970 975

Gln Val Thr Lys Val His Glu Pro Pro Arg Glu Asp Ala Ala Pro Thr
980 985 990

Lys Pro Ala Pro Pro Ala Pro Pro Pro Pro Gln Asn Leu Gln Pro Glu
995 1000 1005

Ser Asp Ala Pro Gln Gln Pro Gly Ser Ser Pro Arg Gly Lys Ser Arg
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Ser Pro Ala Pro Pro Ala Asp Lys Glu Ala Phe Ala Ala Glu Ala Gln
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13

Lys Leu Pro Gly Asp Pro Pro Cys Trp Thr Ser Gly Leu Pro Phe Pro
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Val Pro Pro Arg Glu Val Ile Lys Ala Ser Pro His Ala Pro Asp Pro
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Ser Ala Phe Ser Tyr Ala Pro Pro Gly His Pro Leu Pro Leu Gly Leu
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His Asp Thr Ala Arg Pro Val Leu Pro Arg Pro Pro Thr Ile Ser Asn
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Pro Pro Pro Leu Ile Ser Ser Ala Lys His Pro Ser Val Leu Glu Arg
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Gln Ile Gly Ala Ile Ser Gln Gly Met Ser Val Gln Leu His Val Pro
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Tyr Ser Glu His Ala Lys Ala Pro Val Gly Pro Val Thr Met Gly Leu
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Pro Leu Pro Met Asp Pro Lys Lys Leu Ala Pro Phe Ser Gly Val Lys
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Gln Glu Gln Leu Ser Pro Arg Gly Gln Ala Gly Pro Pro Glu Ser Leu
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Gly Val Pro Thr Ala Gln Glu Ala Ser Val Leu Arg Gly Thr Ala Leu
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Gly Ser Val Pro Gly Gly Ser Ile Thr Lys Gly Ile Pro Ser Thr Arg
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Val Pro Ser Asp Ser Ala Ile Thr Tyr Arg Gly Ser Ile Thr His Gly
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Thr Pro Ala Asp Val Leu Tyr Lys Gly Thr Ile Thr Arg Ile Ile Gly
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Lys Gly His Val Ile Tyr Glu Gly Lys Lys Gly His Val Leu Ser Tyr
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Glu Gly Gly Met Ser Val Thr Gln Cys Ser Lys Glu Asp Gly Arg Ser
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Ser Ser Gly Pro Pro His Glu Thr Ala Ala Pro Lys Arg Thr Tyr Asp
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Leu Lys Glu Gln His His Ile Arg Gly Ser Ile Thr Gln Gly Ile Pro
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Arg Ser Tyr Val Glu Ala Gln Glu Asp Tyr Leu Arg Arg Glu Ala Lys
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Leu Thr Glu Ala Tyr Lys Thr Gln Ala Leu Gly Pro Leu Lys Leu Lys
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Pro Ala His Glu Gly Leu Val Ala Thr Val Lys Glu Ala Gly Arg Ser
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Ile His Glu Ile Pro Arg Glu Glu Leu Arg His Thr Pro Glu Leu Pro
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Leu Lys Tyr Asp Thr Gly Ala Ser Thr Thr Gly Ser Lys Lys His Asp
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Val Arg Ser Leu Ile Gly Ser Pro Gly Arg Thr Phe Pro Pro Val His
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Pro Leu Asp Val Met Ala Asp Ala Arg Ala Leu Glu Arg Ala Cys Tyr
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Glu Glu Ser Leu Lys Ser Arg Pro Gly Thr Ala Ser Ser Ser Gly Gly
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Arg Gln Ser Pro Leu Thr Tyr Glu Asp His Gly Ala Pro Phe Ala Gly
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His Leu Pro Arg Gly Ser Pro Val Thr Met Arg Glu Pro Thr Pro Arg
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Leu Gln Glu Gly Ser Leu Ser Ser Ser Lys Ala Ser Gln Asp Arg Lys
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Leu Thr Ser Thr Pro Arg Glu Ile Ala Lys Ser Pro His Ser Thr Val
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Pro Glu His His Pro His Pro Ile Ser Pro Tyr Glu His Leu Leu Arg
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Gly Val Ser Gly Val Asp Leu Tyr Arg Ser His Ile Pro Leu Ala Phe
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Asp Pro Thr Ser Ile Pro Arg Gly Ile Pro Leu Asp Ala Ala Ala
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15

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 1890 1895 1900
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 1925 1930 1935
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 1940 1945 1950

16

Ala Asp Thr Gly His Ala Phe Leu Ala Lys Pro Pro Ala Arg Ser Gly
1955 1960 1965

Leu Glu Pro Ala Ser Ser Pro Ser Lys Gly Ser Glu Pro Arg Pro Leu
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Val Pro Pro Val Ser Gly His Ala Thr Ile Ala Arg Thr Pro Ala Lys
1985 1990 1995 2000

Asn Leu Ala Pro His His Ala Ser Pro Asp Pro Pro Ala Pro Pro Ala
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Ser Ala Ser Asp Pro His Arg Glu Lys Thr Gln Ser Lys Pro Phe Ser
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Ile Gln Glu Leu Glu Leu Arg Ser Leu Gly Tyr His Gly Ser Ser Tyr
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Ser Pro Glu Gly Val Glu Pro Val Ser Pro Val Ser Ser Pro Ser Leu
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Thr His Asp Lys Gly Leu Pro Lys His Leu Glu Glu Leu Asp Lys Ser
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His Leu Glu Gly Glu Leu Arg Pro Lys Gln Pro Gly Pro Val Lys Leu
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Gly Gly Glu Ala Ala His Leu Pro His Leu Arg Pro Leu Pro Glu Ser
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Gln Pro Ser Ser Ser Pro Leu Leu Gln Thr Ala Pro Gly Val Lys Gly
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His Gln Arg Val Val Thr Leu Ala Gln His Ile Ser Glu Val Ile Thr
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Gln Asp Tyr Thr Arg His His Pro Gln Gln Leu Ser Ala Pro Leu Pro
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Ala Pro Leu Tyr Ser Phe Pro Gly Ala Ser Cys Pro Val Leu Asp Leu
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Arg Arg Pro Pro Ser Asp Leu Tyr Leu Pro Pro Pro Asp His Gly Ala
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Pro Ala Arg Gly Ser Pro His Ser Glu Gly Gly Lys Arg Ser Pro Glu
2195 2200 2205

Pro Asn Lys Thr Ser Val Leu Gly Gly Gly Glu Asp Gly Ile Glu Pro
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2225 2230 2235 2240

Val Tyr Pro Leu Leu Tyr Arg Asp Gly Glu Gln Thr Glu Pro Ser Arg
2245 2250 2255

17

Met Gly Ser Lys Ser Pro Gly Asn Thr Ser Gln Pro Pro Ala Phe Phe
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Ser Lys Leu Thr Glu Ser Asn Ser Ala Met Val Lys Ser Lys Lys Gln
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Glu Ile Asn Lys Lys Leu Asn Thr His Asn Arg Asn Glu Pro Glu Tyr
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Gly Thr Gly Leu Met Thr Tyr Arg Ser Gln Ala Val Gln Glu His Ala
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Ser Thr Asn Met Gly Leu Glu Ala Ile Ile Arg Lys Ala Leu Met Gly
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Lys Tyr Asp Gln Trp Glu Glu Ser Pro Pro Leu Ser Ala Asn Ala Phe
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Ala Ala Asp Gly Arg Ser Asp His Thr Leu Thr Ser Pro Gly Gly Gly
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Pro Ala Pro Gly Leu Ala Ser Gly Asp Arg Pro Pro Ser Val Ser Ser
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Val Trp Glu Asp Arg Pro Ser Ser Ala Gly Ser Thr Pro Phe Pro Tyr
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Pro Pro Gly Leu Pro Ala Gly Ser Gly Pro Leu Ala Gly Pro His His
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Leu Ser Asp Ser Glu
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21

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Tyr Thr Ser His Leu Ser Pro Gly Ser Ile Ile Gln Pro Gln Arg Arg
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Arg Pro Ser Leu Leu Ser Glu Phe Gln Pro Gly Ser Glu Arg Ser Gln
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Glu Leu His Leu Arg Pro Glu Ser Arg Thr Phe Leu Pro Glu Leu Gly
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Lys Pro Asp Ile Glu Phe Thr Glu Ser Lys Arg Pro Arg Leu Glu Leu
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Leu Pro Asp Thr Leu Leu Arg Pro Ser Pro Leu Leu Ala Thr Gly Gln
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Pro Ser Gly Ser Glu Asp Leu Thr Lys Asp Arg Ser Leu Ala Gly Lys
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Leu Glu Pro Val Ser Pro Pro Ser Pro Pro His Ala Asp Pro Glu Leu
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Glu Leu Ala Pro Ser Arg Leu Ser Lys Glu Glu Leu Ile Gln Asn Met
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Asp Arg Val Asp Arg Glu Ile Thr Met Val Glu Gln Gln Ile Ser Lys
 180 185 190

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Glu Pro Glu Lys Pro Val Ser Pro Pro Pro Ile Glu Ser Lys His Arg
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Ser Leu Val Gln Ile Ile Tyr Asp Glu Asn Arg Lys Lys Ala Glu Ala
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Ala His Arg Ile Leu Glu Gly Leu Gly Pro Gln Val Glu Leu Pro Leu
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22

Tyr Asn Gln Pro Ser Asp Thr Arg Gln Tyr His Glu Asn Ile Lys Ile
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 Asn Gln Ala Met Arg Lys Lys Leu Ile Leu Tyr Phe Lys Arg Arg Asn
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 His Ala Arg Lys Gln Trp Glu Gln Arg Phe Cys Gln Arg Tyr Asp Gln
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 Leu Met Glu Ala Trp Glu Lys Lys Val Glu Arg Ile Glu Asn Asn Pro
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 Phe Pro Glu Ile Arg Lys Gln Arg Glu Leu Gln Glu Arg Met Gln Ser
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 Arg Val Gly Gln Arg Gly Ser Gly Leu Ser Met Ser Ala Ala Arg Ser
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 Glu His Glu Val Ser Glu Ile Ile Asp Gly Leu Ser Glu Gln Glu Asn
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 Leu Glu Lys Gln Met Arg Gln Leu Ala Val Ile Pro Pro Met Leu Tyr
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 Asp Ala Asp Gln Gln Arg Ile Lys Phe Ile Asn Met Asn Gly Leu Met
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 Asp Asp Pro Met Lys Val Tyr Lys Asp Arg Gln Val Thr Asn Met Trp
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 Ser Glu Gln Glu Arg Asp Thr Phe Arg Glu Lys Phe Met Gln His Pro
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 Glu Glu Lys Gln Asp Ala Glu Asn Glu Lys Glu Glu Leu Ser Lys Glu
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23

Ala Ser Lys Gly Arg Lys Thr Ala Asn Ser Gln Gly Arg Arg Lys Gly
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 Thr Pro Gln Gln Ser Ser Glu Leu Ala Ser Met Glu Met Asn Glu Ser
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 Ser Arg Trp Thr Glu Glu Glu Met Glu Thr Ala Lys Lys Gly Leu Leu
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 Glu His Gly Arg Asn Trp Ser Ala Ile Ala Arg Met Val Gly Ser Lys
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 Thr Val Ser Gln Cys Lys Asn Phe Tyr Phe Asn Tyr Lys Lys Arg Gln
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 Asn Leu Asp Glu Ile Leu Gln Gln His Lys Leu Lys Met Glu Lys Glu
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 Arg Asn Ala Arg Arg Lys Lys Lys Lys Thr Pro Ala Ala Ala Ser Glu
 675 680 685
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 Gln Ala Ser Gly Asn Glu Val Pro Arg Val Gly Glu Cys Ser Gly Pro
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 740 745 750
 Ser Glu Ala Met Lys Asp Thr Gly Pro Lys Pro Thr Gly Thr Glu Ala
 755 760 765
 Leu Pro Ala Ala Thr Gln Pro Pro Val Pro Pro Pro Glu Glu Pro Ala
 770 775 780
 Val Ala Pro Ala Glu Pro Ser Pro Val Pro Asp Ala Ser Gly Pro Pro
 785 790 795 800
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 835 840 845
 Glu Glu Pro Glu Ala Ser Glu Glu Pro Pro Glu Ser Val Lys Ser Asp
 850 855 860

24

His Lys Glu Glu Thr Glu Glu Glu Pro Glu Asp Lys Ala Lys Gly Thr
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 Gly Ser Lys Ala Ala Val Thr Lys Gly Ser Ser Ser Gly Ala Thr Gln
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 980 985 990
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25

Gly Thr Ala Leu Gly Ser Ala Thr Ser Gly Ser Ile Thr Lys Gly Leu
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26

Ala Cys Tyr Glu Glu Ser Leu Lys Ser Arg Ser Gly Thr Ser Ser Gly
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Ala Gly Gly Ser Ile Thr Arg Gly Ala Pro Val Val Val Pro Glu Leu
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Gly Lys Pro Arg Gln Ser Pro Leu Thr Tyr Glu Asp His Gly Ala Pro
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Asp Arg Lys Leu Thr Ser Thr Pro Arg Glu Ile Ala Lys Ser Pro His
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Ser Thr Val Pro Glu His His Pro His Pro Ile Ser Pro Tyr Glu His
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Leu Ala Phe Asp Pro Thr Ser Ile Pro Arg Gly Ile Pro Leu Glu Ala
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Tyr Pro His Leu Tyr Pro Pro Tyr Leu Ile Arg Gly Tyr Pro Asp Thr
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Gln Gln Met His His Asn Ala Ala Ser Ala Met Ala Gln Arg Ala Asp
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Met Leu Arg Gly Leu Ser Pro Arg Glu Ser Ser Leu Ala Leu Asn Tyr
1685 1690 1695

Ala Ala Gly Pro Arg Gly Ile Ile Asp Leu Ser Gln Val Pro His Leu
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Pro Val Leu Val Pro Pro Thr Pro Gly Thr Pro Ala Thr Ala Ile Asp
1715 1720 1725

Arg Leu Ala Tyr Leu Pro Thr Ala Pro Pro Pro Phe Ser Ser Arg His
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Ser Ser Ser Pro Leu Ser Pro Gly Gly Pro Thr His Leu Ala Lys Pro
1745 1750 1755 1760

Thr Ala Thr Ser Ser Ser Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg
1765 1770 1775

27

Asp Lys Ser Ile Leu Thr Ser Thr Thr Thr Val Glu His Ala Pro Ile
1780 1785 1790

Trp Arg Pro Gly Thr Glu Gln Ser Ser Gly Ala Gly Gly Ser Ser Arg
1795 1800 1805

Pro Ala Ser His Thr His Gln His Ser Pro Ile Ser Pro Arg Thr Gln
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Asp Ala Leu Gln Gln Arg Pro Ser Val Leu His Asn Thr Ser Met Lys
1825 1830 1835 1840

Gly Val Val Thr Ser Val Glu Pro Gly Thr Pro Thr Val Leu Arg Trp
1845 1850 1855

Ala Arg Ser Thr Ser Thr Ser Ser Pro Val Arg Pro Ala Ala Thr Phe
1860 1865 1870

Pro Pro Ala Thr His Cys Pro Leu Gly Gly Thr Leu Glu Gly Val Tyr
1875 1880 1885

Pro Thr Leu Met Glu Pro Val Leu Leu Pro Lys Glu Thr Ser Arg Val
1890 1895 1900

Ala Arg Pro Glu Arg Ala Arg Val Asp Ala Gly His Ala Phe Leu Thr
1905 1910 1915 1920

Lys Pro Pro Gly Arg Glu Pro Ala Ser Ser Pro Ser Lys Ser Ser Glu
1925 1930 1935

Pro Arg Ser Leu Ala Pro Pro Ser Ser Ser His Thr Ala Ile Ala Arg
1940 1945 1950

Thr Pro Ala Lys Asn Leu Ala Pro His His Ala Ser Pro Asp Pro Pro
1955 1960 1965

Ala Pro Thr Ser Ala Ser Asp Leu His Arg Glu Lys Thr Gln Ser Lys
1970 1975 1980

Pro Phe Ser Ile Gln Glu Leu Glu Leu Arg Ser Leu Gly Tyr His Ser
1985 1990 1995 2000

Gly Ala Gly Tyr Ser Pro Asp Gly Val Glu Pro Ile Ser Pro Val Ser
2005 2010 2015

Ser Pro Ser Leu Thr His Asp Lys Gly Leu Ser Lys Pro Leu Glu Glu
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Leu Glu Lys Ser His Leu Glu Gly Glu Leu Arg His Lys Gln Pro Gly
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Pro Met Lys Leu Ser Ala Glu Ala Ala His Leu Pro His Leu Arg Pro
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Leu Pro Glu Ser Gln Pro Ser Ser Ser Pro Leu Leu Gln Thr Ala Pro
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28

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29

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41

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42

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 <212> PRT
 <213> Homo sapiens

<400> 11

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Gln	Ser	Arg	Tyr	Pro	Pro	His	Ser	Val	Gln	Tyr	Thr	Phe	Pro	Asn	Thr	20	25	30	
Arg	His	Gln	Gln	Glu	Phe	Ala	Val	Pro	Asp	Tyr	Arg	Ser	Ser	His	Leu	35	40	45	
Glu	Val	Ser	Gln	Ala	Ser	Gln	Leu	Leu	Gln	Gln	Gln	Gln	Gln	Gln	Gln	50	55	60	
Leu	Arg	Arg	Arg	Pro	Ser	Leu	Leu	Ser	Glu	Phe	His	Pro	Gly	Ser	Asp	65	70	75	80
Arg	Pro	Gln	Glu	Arg	Arg	Thr	Ser	Tyr	Glu	Pro	Phe	His	Pro	Gly	Pro	85	90	95	
Ser	Pro	Val	Asp	His	Asp	Ser	Leu	Glu	Ser	Lys	Arg	Pro	Arg	Leu	Glu	100	105	110	
Gln	Val	Ser	Asp	Ser	His	Phe	Gln	Arg	Val	Ser	Ala	Ala	Val	Leu	Pro	115	120	125	
Leu	Val	His	Pro	Leu	Pro	Glu	Gly	Leu	Arg	Ala	Ser	Ala	Asp	Ala	Lys	130	135	140	
Lys	Asp	Pro	Ala	Phe	Gly	Gly	Lys	His	Glu	Ala	Pro	Ser	Ser	Pro	Ile	145	150	155	160
Ser	Gly	Gln	Pro	Cys	Gly	Asp	Asp	Gln	Asn	Ala	Ser	Pro	Ser	Lys	Leu	165	170	175	
Ser	Lys	Glu	Glu	Leu	Ile	Gln	Ser	Met	Asp	Arg	Val	Asp	Arg	Glu	Ile	180	185	190	
Ala	Lys	Val	Glu	Gln	Gln	Ile	Leu	Lys	Leu	Lys	Lys	Lys	Gln	Gln	Gln	195	200	205	
Leu	Glu	Glu	Glu	Ala	Ala	Lys	Pro	Pro	Glu	Pro	Glu	Lys	Pro	Val	Ser	210	215	220	
Pro	Pro	Pro	Val	Glu	Gln	Lys	His	Arg	Ser	Ile	Val	Gln	Ile	Ile	Tyr	225	230	235	240
Asp	Glu	Asn	Arg	Lys	Lys	Ala	Glu	Glu	Ala	His	Lys	Ile	Phe	Glu	Gly	245	250	255	

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Leu Gly Pro Lys Val Glu Leu Pro Leu Tyr Asn Gln Pro Ser Asp Thr
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 Lys Val Tyr His Glu Asn Ile Lys Thr Asn Gln Val Met Arg Lys Lys
 275 280 285
 Leu Ile Leu Phe Phe Lys Arg Arg Asn His Ala Arg Lys Gln Arg Glu
 290 295 300
 Gln Lys Ile Cys Gln Arg Tyr Asp Gln Leu Met Glu Ala Trp Glu Lys
 305 310 315 320
 Lys Val Asp Arg Ile Glu Asn Asn Pro Arg Arg Lys Ala Lys Glu Ser
 325 330 335
 Lys Thr Arg Glu Tyr Tyr Glu Lys Gln Phe Pro Glu Ile Arg Lys Gln
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 Arg Glu Gln Gln Glu Arg Phe Gln Arg Val Gly Gln Arg Gly Ala Gly
 355 360 365
 Leu Ser Ala Thr Ile Ala Arg Ser Glu His Glu Ile Ser Glu Ile Ile
 370 375 380
 Asp Gly Leu Ser Glu Gln Glu Asn Asn Glu Lys Gln Met Arg Gln Leu
 385 390 395 400
 Ser Val Ile Pro Pro Met Met Phe Asp Ala Glu Gln Arg Arg Val Lys
 405 410 415
 Phe Ile Asn Met Asn Gly Leu Met Glu Asp Pro Met Lys Val Tyr Lys
 420 425 430
 Asp Arg Gln Phe Met Asn Val Trp Thr Asp His Glu Lys Glu Ile Phe
 435 440 445
 Lys Asp Lys Phe Ile Gln His Pro Lys Asn Phe Gly Leu Ile Ala Ser
 450 455 460
 Tyr Leu Glu Arg Lys Ser Val Pro Asp Cys Val Leu Tyr Tyr Tyr Leu
 465 470 475 480
 Thr Lys Lys Asn Glu Asn Tyr Lys Ala Leu Val Arg Arg Asn Tyr Gly
 485 490 495
 Lys Arg Arg Gly Arg Asn Gln Gln Ile Ala Arg Pro Ser Gln Glu Glu
 500 505 510
 Lys Val Glu Glu Lys Glu Glu Asp Lys Ala Glu Lys Thr Glu Lys Lys
 515 520 525
 Glu Glu Glu Lys Lys Asp Glu Glu Glu Lys Asp Glu Lys Glu Asp Ser
 530 535 540
 Lys Glu Asn Thr Lys Glu Lys Asp Lys Ile Asp Gly Thr Ala Glu Glu
 545 550 555 560

44

Thr Glu Glu Arg Glu Gln Ala Thr Pro Arg Gly Arg Lys Thr Ala Asn
565 570 575
Ser Gln Gly Arg Arg Lys Gly Arg Ile Thr Arg Ser Met Thr Asn Glu
580 585 590
Ala Ala Ala Ala Ser Ala Ala Ala Ala Ala Thr Glu Glu Pro Pro
595 600 605
Pro Pro Leu Pro Pro Pro Pro Glu Pro Ile Ser Thr Glu Pro Val Glu
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Thr Ser Arg Trp Thr Glu Glu Glu Met Glu Val Ala Lys Lys Gly Leu
625 630 635 640
Val Glu His Gly Arg Asn Trp Ala Ala Ile Ala Lys Met Val Gly Thr
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His Asn Leu Asp Asn Leu Leu Gln Gln His Lys Gln Lys Thr Ser Arg
675 680 685
Lys Pro Arg Glu Glu Arg Asp Val Ser Gln Cys Glu Ser Val Ala Ser
690 695 700
Thr Val Ser Ala Gln Glu Asp Glu Asp Ile Glu Ala Ser Asn Glu Glu
705 710 715 720
Glu Asn Pro Glu Asp Ser Glu Val Glu Ala Val Lys Pro Ser Glu Asp
725 730 735
Ser Pro Glu Asn Ala Thr Ser Arg Gly Asn Thr Glu Pro Ala Val Glu
740 745 750
Leu Glu Pro Thr Thr Glu Thr Ala Pro Ser Thr Ser Pro Ser Leu Ala
755 760 765
Val Pro Ser Thr Lys Pro Ala Glu Asp Glu Ser Val Glu Thr Gln Val
770 775 780
Asn Asp Ser Ile Ser Ala Glu Thr Ala Glu Gln Met Asp Val Asp Gln
785 790 795 800
Gln Glu His Ser Ala Glu Glu Gly Ser Val Cys Asp Pro Pro Pro Ala
805 810 815
Thr Lys Ala Asp Ser Val Asp Val Glu Val Arg Val Pro Glu Asn His
820 825 830
Ala Ser Lys Val Glu Gly Asp Asn Thr Lys Glu Arg Asp Leu Asp Arg
835 840 845
Ala Ser Glu Lys Val Glu Pro Arg Asp Glu Asp Leu Val Val Ala Gln
850 855 860

45

Gln Ile Asn Ala Gln Arg Pro Glu Pro Gln Ser Asp Asn Asp Ser Ser
 865 870 875 880
 Ala Thr Cys Ser Ala Asp Glu Asp Val Asp Gly Glu Pro Glu Arg Gln
 885 890 895
 Arg Met Phe Pro Met Asp Ser Lys Pro Ser Leu Leu Asn Pro Thr Gly
 900 905 910
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 945 950 955 960
 Gln Arg His Ile Lys Ala Met His Glu Ser Ala Leu Leu Glu Glu Gln
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 980 985 990
 Pro Cys Gly Thr Ser Lys Ser Pro Asn Arg Glu Trp Glu Val Leu Gln
 995 1000 1005
 Pro Ala Pro His Gln Leu Ile Thr Asn Leu Pro Glu Gly Val Arg Leu
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 Pro Thr Thr Arg Pro Thr Arg Pro Pro Pro Pro Leu Ile Pro Ser Ser
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 Lys Thr Thr Val Ala Ser Glu Lys Pro Ser Phe Ile Met Gly Gly Ser
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 Ile Ser Gln Gly Thr Pro Gly Thr Tyr Leu Thr Ser His Asn Gln Ala
 1060 1065 1070
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 1075 1080 1085
 Gly Leu Pro Arg Gln Gln Glu Ser Ala Lys Ser Ala Thr Leu Pro Tyr
 1090 1095 1100
 Ile Lys Gln Glu Glu Phe Ser Pro Arg Ser Gln Asn Ser Gln Pro Glu
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 Gly Leu Leu Val Arg Ala Gln His Glu Gly Val Val Arg Gly Thr Ala
 1125 1130 1135
 Gly Ala Ile Gln Glu Gly Ser Ile Thr Arg Gly Thr Pro Thr Ser Lys
 1140 1145 1150
 Ile Ser Val Glu Ser Ile Pro Ser Leu Arg Gly Ser Ile Thr Gln Gly
 1155 1160 1165

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Thr Pro Ala Leu Pro Gln Thr Gly Ile Pro Thr Glu Ala Leu Val Lys
1170 1175 1180

Gly Ser Ile Ser Arg Met Pro Ile Glu Asp Ser Ser Pro Glu Lys Gly
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Arg Glu Glu Ala Ala Ser Lys Gly His Val Ile Tyr Glu Gly Lys Ser
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Gly His Ile Leu Ser Tyr Asp Asn Ile Lys Asn Ala Arg Glu Gly Thr
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Arg Ser Pro Arg Thr Ala His Glu Ile Ser Leu Lys Arg Ser Tyr Glu
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Ser Val Glu Gly Asn Ile Lys Gln Gly Met Ser Met Arg Glu Ser Pro
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Val Ser Ala Pro Leu Glu Gly Leu Ile Cys Arg Ala Leu Pro Arg Gly
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Ser Pro His Ser Asp Leu Lys Glu Arg Thr Val Leu Ser Gly Ser Ile
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Met Gln Gly Thr Pro Arg Ala Thr Thr Glu Ser Phe Glu Asp Gly Leu
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Lys Tyr Pro Lys Gln Ile Lys Arg Glu Ser Pro Pro Ile Arg Ala Phe
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Glu Gly Ala Ile Thr Lys Gly Lys Pro Tyr Asp Gly Ile Thr Thr Ile
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Ile Ile Glu Gly Ser Ile Ser Gln Gly Thr Pro Ile Lys Phe Asp Asn
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Asn Ser Gly Gln Ser Ala Ile Lys His Asn Val Lys Ser Leu Ile Thr
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Gly Pro Ser Lys Leu Ser Arg Gly Met Pro Pro Leu Glu Ile Val Pro
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Glu Asn Ile Lys Val Val Glu Arg Gly Lys Tyr Glu Asp Val Lys Ala
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Gly Glu Thr Val Arg Ser Arg His Thr Ser Val Val Ser Ser Gly Pro
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Ser Val Leu Arg Ser Thr Leu His Glu Ala Pro Lys Ala Gln Leu Ser
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47

Pro Gly Ile Tyr Asp Asp Thr Ser Ala Arg Arg Thr Pro Val Ser Tyr
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1490 1495 1500

Val Thr Ile Pro Pro Asn Lys Ser Thr Asn His Glu Arg Lys Ser Thr
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Leu Thr Pro Thr Gln Arg Glu Ser Ile Pro Ala Lys Ser Pro Val Pro
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Gly Val Asp Pro Val Val Ser His Ser Pro Phe Asp Pro His His Arg
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Gly Ser Thr Ala Gly Glu Val Tyr Trp Ser His Leu Pro Thr Gln Leu
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Asp Pro Ala Met Pro Phe His Arg Ala Leu Asp Pro Ala Ala Ala Ala
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Tyr Leu Phe Gln Arg Gln Leu Ser Pro Thr Pro Gly Tyr Pro Ser Gln
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Tyr Gln Leu Tyr Ala Met Glu Asn Thr Arg Gln Thr Ile Leu Asn Asp
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Tyr Ile Thr Ser Gln Gln Met Gln Val Asn Leu Arg Pro Asp Val Ala
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Arg Gly Leu Ser Pro Arg Glu Gln Pro Leu Gly Leu Pro Tyr Pro Ala
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Thr Arg Gly Ile Ile Asp Leu Thr Asn Met Pro Pro Thr Ile Leu Val
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Pro His Pro Gly Gly Thr Ser Thr Pro Pro Met Asp Arg Ile Thr Tyr
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Ile Pro Gly Thr Gln Ile Thr Phe Pro Pro Arg Pro Tyr Asn Ser Ala
1685 1690 1695

Ser Met Ser Pro Gly His Pro Thr His Leu Ala Ala Ala Ala Ser Ala
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Glu Arg Glu Arg Glu Arg Glu Arg Glu Lys Glu Arg Glu Arg Glu Arg
1715 1720 1725

Ile Ala Ala Ala Ser Ser Asp Leu Tyr Leu Arg Pro Gly Ser Glu Gln
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Pro Gly Arg Pro Gly Ser His Gly Tyr Val Arg Ser Pro Ser Pro Ser
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Val Arg Thr Gln Glu Thr Met Leu Gln Gln Arg Pro Ser Val Phe Gln
1765 1770 1775

48

Gly Thr Asn Gly Thr Ser Val Ile Thr Pro Leu Asp Pro Thr Ala Gln
1780 1785 1790

Leu Arg Ile Met Pro Leu Pro Ala Gly Gly Pro Ser Ile Ser Gln Gly
1795 1800 1805

Leu Pro Ala Ser Arg Tyr Asn Thr Ala Ala Asp Ala Leu Ala Ala Leu
1810 1815 1820

Val Asp Ala Ala Ala Ser Ala Pro Gln Met Asp Val Ser Lys Thr Lys
1825 1830 1835 1840

Glu Ser Lys His Glu Ala Ala Arg Leu Glu Glu Asn Leu Arg Ser Arg
1845 1850 1855

Ser Ala Ala Val Ser Glu Gln Gln Gln Leu Glu Gln Lys Thr Leu Glu
1860 1865 1870

Val Glu Lys Arg Ser Val Gln Cys Leu Tyr Thr Ser Ser Ala Phe Pro
1875 1880 1885

Ser Gly Lys Pro Gln Pro His Ser Ser Val Val Tyr Ser Glu Ala Gly
1890 1895 1900

Lys Asp Lys Gly Pro Pro Pro Lys Ser Arg Tyr Glu Glu Glu Leu Arg
1905 1910 1915 1920

Thr Arg Gly Lys Thr Thr Ile Thr Ala Ala Asn Phe Ile Asp Val Ile
1925 1930 1935

Ile Thr Arg Gln Ile Ala Ser Asp Lys Asp Ala Arg Glu Arg Gly Ser
1940 1945 1950

Gln Ser Ser Asp Ser Ser Ser Ser Leu Ser Ser His Arg Tyr Glu Thr
1955 1960 1965

Pro Ser Asp Ala Ile Glu Val Ile Ser Pro Ala Ser Ser Pro Ala Pro
1970 1975 1980

Pro Gln Glu Lys Leu Gln Thr Tyr Gln Pro Glu Val Val Lys Ala Asn
1985 1990 1995 2000

Gln Ala Glu Asn Asp Pro Thr Arg Gln Tyr Glu Gly Pro Leu His His
2005 2010 2015

Tyr Arg Pro Gln Gln Glu Ser Pro Ser Pro Gln Gln Gln Leu Pro Pro
2020 2025 2030

Ser Ser Gln Ala Glu Gly Met Gly Gln Val Pro Arg Thr His Arg Leu
2035 2040 2045

Ile Thr Leu Ala Asp His Ile Cys Gln Ile Ile Thr Gln Asp Phe Ala
2050 2055 2060

Arg Asn Gln Val Ser Ser Gln Thr Pro Gln Gln Pro Pro Thr Ser Thr
2065 2070 2075 2080

49

Phe Gln Asn Ser Pro Ser Ala Leu Val Ser Thr Pro Val Arg Thr Lys
2085 2090 2095

Thr Ser Asn Arg Tyr Ser Pro Glu Ser Gln Ala Gln Ser Val His His
2100 2105 2110

Gln Arg Pro Gly Ser Arg Val Ser Pro Glu Asn Leu Val Asp Lys Ser
2115 2120 2125

Arg Gly Ser Arg Pro Gly Lys Ser Pro Glu Arg Ser His Val Ser Ser
2130 2135 2140

Glu Pro Tyr Glu Pro Ile Ser Pro Pro Gln Val Pro Val Val His Glu
2145 2150 2155 2160

Lys Gln Asp Ser Leu Leu Leu Leu Ser Gln Arg Gly Ala Glu Pro Ala
2165 2170 2175

Glu Gln Arg Asn Asp Ala Arg Ser Pro Gly Ser Ile Ser Tyr Leu Pro
2180 2185 2190

Ser Phe Phe Thr Lys Leu Glu Asn Thr Ser Pro Met Val Lys Ser Lys
2195 2200 2205

Lys Gln Glu Ile Phe Arg Lys Leu Asn Ser Ser Gly Gly Gly Asp Ser
2210 2215 2220

Asp Met Ala Ala Ala Gln Pro Gly Thr Glu Ile Phe Asn Leu Pro Ala
2225 2230 2235 2240

Val Thr Thr Ser Gly Ser Val Ser Ser Arg Gly His Ser Phe Ala Asp
2245 2250 2255

Pro Ala Ser Asn Leu Gly Leu Glu Asp Ile Ile Arg Lys Ala Leu Met
2260 2265 2270

Gly Ser Phe Asp Asp Lys Val Glu Asp His Gly Val Val Met Ser Gln
2275 2280 2285

Pro Met Gly Val Val Pro Gly Thr Ala Asn Thr Ser Val Val Thr Ser
2290 2295 2300

Gly Glu Thr Arg Arg Glu Glu Gly Asp Pro Ser Pro His Ser Gly Gly
2305 2310 2315 2320

Val Cys Lys Pro Lys Leu Ile Ser Lys Ser Asn Ser Arg Lys Ser Lys
2325 2330 2335

Ser Pro Ile Pro Gly Gln Gly Tyr Leu Gly Thr Glu Arg Pro Ser Ser
2340 2345 2350

Val Ser Ser Val His Ser Glu Gly Asp Tyr His Arg Gln Thr Pro Gly
2355 2360 2365

Trp Ala Trp Glu Asp Arg Pro Ser Ser Thr Gly Ser Thr Gln Phe Pro
2370 2375 2380

• •

Tyr Asn Pro Leu Thr Met Arg Met Leu Ser Ser Thr Pro Pro Thr Pro
2385 2390 2395 2400

Ile Ala Cys Ala Pro Ser Ala Val Asn Gln Ala Ala Pro His Gln Gln
2405 2410 2415

Asn Arg Ile Trp Glu Arg Glu Pro Ala Pro Leu Leu Ser Ala Gln Tyr
2420 2425 2430

Glu Thr Leu Ser Asp Ser Asp Asp
2435 2440

<210> 12

<211> 3446

<212> PRT

<213> Drosophila sp.

<400> 12

Met Ser Ala Tyr Gln Gln Arg Leu Pro Ser Asn Ala Ala Ser Ile His
1 5 10 15

Ser Pro His Trp Ser Tyr Arg Ala Leu Glu Gln Gln Gln Gln Tyr Ala
20 25 30

Lys Gln Ala Ala His Leu Gln Gln Gln Gln His Gln Ser His Gln Gln
35 40 45

Gln Gln Gln Gln Gln Gln Asp Gln Arg Thr Asn Leu His Leu Gln Ile
50 55 60

His	His	His	His	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln
65					70					75						80

Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Lys Gln Gln Gln His
85 90 95

His Met Gln Gln Gln Gln Gln Gln Gln Pro Leu Ser Pro Pro His Pro
100 105 110

Pro Gly Ser Ser Ser Asn Ser Ser Ser Ala Ala Ala Ala Ala Ala Ala
115 120 125

Ala Ala Ala Ala Ala Ala Ala Val Asn Pro Gly Tyr Pro Pro Ser Ser
130 135 140

Ala Ala Ala Ala Ala Val Asn Ser Gly Tyr Pro Pro Arg Pro Pro Gln
145 150 155 160

His Arg Phe Ile Gln Asn Thr Gly Tyr Ser Ile Ala Pro Ala Pro Thr
165 170 175

Tyr Arg Asp Asn Pro Tyr Ser Arg His Thr Gln Ile Gln Gln Gln Gln
180 185 190

[illegible]

51

Gln Gln Gln Gln Ala Ala Ala Ser Met Pro Glu Tyr Gln Arg Ala Ala
210 215 220

Ala Arg Ala Ala Val Ala Ala Val Ser Ala Gly Lys Gly Asn Val Ser
225 230 235 240

Gly Gln Ser Ser Asn Ser Ser Ser Ser Ser Ser Gly Gly Gly Gly Gly
245 250 255

Gly Gly Ser Ala Gly Gly Ser Ala Pro Pro Gly Gly Gly Val Val Gln
260 265 270

Val Ser Gln Ser Gly Gly Val Leu Val Met Glu Ala Met Pro His Tyr
275 280 285

Ala Ser Gln Pro Asn Ser Asn Pro Ser Gln Gln Gln Gln Gln Gln
290 295 300

Gln Gln Gln Gln Gly Gly Asn Pro Ser Gly Ala Gly Ala Thr Ser Gly
305 310 315 320

Ala Gly Gly Gly Gly Gly Gly Gly Ser Gly Gly Ser Val Met Val Gly Ser
325 330 335

Leu Gly Arg Ile Leu Met Pro His Pro Gln Ala Leu Gln Tyr Thr Ser
340 345 350

Glu Tyr Leu Thr Asn Ala Thr Ala Ala Val Ala Ala Ala Met Val Asn
355 360 365

Gln Arg Gln His Leu Gln Leu Gln Gln Gln Gln Gln Gln His Pro
370 375 380

Pro Glu Pro Phe Gly Gly Gln Gln Pro Tyr Lys Lys Gln Arg Leu Ser
385 390 395 400

Glu Ala Asn Ala Asn Asn Met Asn His Leu Pro Pro His Pro Gln Gln
405 410 415

Gln His Gln Gln Gln Gln Gln Gln Gln Gln Gln His Gln Arg Ser Ser
420 425 430

Pro Ala Gln Val Gln Gln Gln Gln Gln Gln Gln Met Asn Ser Ser Arg
435 440 445

Gln Ser His Asn Asp Met Cys Arg Gln Val Val Thr Thr Pro Met Gly
450 455 460

Met Gln Leu Lys Val Glu Thr Leu Pro Gln Gln Gln Gln Lys Gln Gln
465 470 475 480

Gln His Gln Gln Gln Gln Gln Gln Gln Gln Gln Gly Arg Ser Gln Pro
485 490 495

Val Val Ser Ser Met Ser Thr Val Val Ser Gln Pro Val Gly Thr Val
500 505 510

52

Thr Val Thr Thr Ala Gly Leu Ser Ala Ser His Ser Gly Ser Ser Gly
 515 520 525
 Asn Val Ala Ala Gly Leu Gly Thr Gly Asn Thr Gly Ser Ala Ser Thr
 530 535 540
 Glu Ala Tyr His Pro Gln Val Glu Ala Ile Ser Pro Thr Leu Pro Ser
 545 550 555 560
 Asp Ser Ser Ile Glu Glu Arg Gly Arg Thr Ser Ala Lys Glu Asp Leu
 565 570 575
 Leu Met Gln Ile Gln Lys Val Asp Asn Glu Ile Lys Ser Ala Glu Thr
 580 585 590
 Thr Met Glu Thr Leu Arg Lys Lys Glu Lys Ser Leu Met Glu Glu Ala
 595 600 605
 Ala Leu Ala Lys Glu Gln Arg Ala Ala Lys Glu Leu Asn Asp Asn Asn
 610 615 620
 Asn Asp Gln Glu Pro Met Val Glu Leu Ser Trp Arg Ser Gln Met Leu
 625 630 635 640
 Ala Glu Lys Ile Tyr Ala Ala Asn Arg Lys Thr Ala Gln Ala Gln His
 645 650 655
 Ser Met Leu Gln Asn Ala Ala Ala Asp Glu Ser Ser Pro Gly Ser Val
 660 665 670
 Ala Gly Arg Pro Trp Leu Pro Leu Tyr Asn Gln Pro Leu Asp Val Glu
 675 680 685
 Ala Leu Ala Met Leu Ile Arg Gln His Gln Ser Gln Ile Arg Ala Pro
 690 695 700
 Leu Leu Leu His Ile Arg Lys Leu Lys Ala Glu Arg Trp Ala His Asn
 705 710 715 720
 Gln Gly Leu Val Glu Lys Tyr Thr Lys Asp Gln Ala Asp Trp Gln Arg
 725 730 735
 Arg Cys Glu Arg Met Glu Ala Ser Ala Lys Arg Lys Ala Arg Glu Ala
 740 745 750
 Lys Asn Arg Glu Phe Phe Glu Lys Val Phe Thr Glu Leu Arg Lys Gln
 755 760 765
 Arg Glu Asp Lys Glu Arg Phe Asn Arg Val Gly Ser Arg Ile Lys Ser
 770 775 780
 Glu Ala Asp Leu Glu Glu Ile Met Asp Gly Leu Gln Glu Gln Ala Leu
 785 790 795 800
 Glu Asp Lys Lys Met Arg Ser Tyr Ala Val Ile Pro Pro Leu Met His
 805 810 815

53

Asp Ala Arg Gln Arg Arg Cys Ala Tyr His Asn Glu Asn Gly Leu Ile
820 825 830

Glu Asp Met Val Ala Val His Gln Gln Arg Lys Ala Leu Asn Met Trp
835 840 845

Thr Ala Gly Glu Lys Glu Thr Phe Lys Glu Lys Tyr Leu Gln His Pro
850 855 860

Lys Asn Phe Gly Ala Ile Ala Ala Ser Leu Asp Arg Lys Ser Pro Gln
865 870 875 880

Asp Cys Val Arg Tyr Tyr Tyr Leu Ser Lys Lys Thr Glu Asn Tyr Lys
885 890 895

Gln Leu Leu Arg Lys Ser Arg Gln Arg Thr Arg Ser Ser Arg Asn Pro
900 905 910

Ala Lys Ala Gln Ala Ala Gln Pro Gln Cys Ile Ile Asp Ser Met Thr
915 920 925

Thr Gly Val Met Thr Arg Leu Gln Arg Glu Gln Gln Gln Lys Ser Gly
930 935 940

Gly Arg Ser Ser Ala Val Ala Glu Arg Glu Arg Ala Glu Arg Ala Ala
945 950 955 960

Glu Arg Glu Arg Val Ala Glu Lys Ala Ala Ala Asp Ala Ala Lys Ala
965 970 975

Ala Glu Ser Ala Ala Glu Lys Ala Ser Ala Ala Thr Lys Ala Val Glu
980 985 990

Ala Thr Ala Ala Gly Glu Lys Val Ala Lys Ala Ala Ala Ala Ala Ala
995 1000 1005

Ala Ala Ala Ala Thr Thr Ala Thr Thr Ala Thr Thr Thr Thr Ser Ser
1010 1015 1020

Ser Thr Ser Ser Ser Ser Ser Ser Ala Ser Ser Ala Ser Thr Ala Ser
1025 1030 1035 1040

Ser Ser Thr Ala Ser Pro Ala Thr Leu Ala Gly Ile Ala Ala Asp Lys
1045 1050 1055

Thr Asp Ala Gly Lys Thr Ala Ser Ala Ser Asp Lys Asn Ala Ala Thr
1060 1065 1070

Ala Gly Gly Pro Thr Ala Thr Gly Thr Pro Thr Ala Ala Thr Thr Pro
1075 1080 1085

Ala Thr Ala Thr Ala Pro Pro Glu Ile Ser Ala Gly Gly Glu Ala Lys
1090 1095 1100

Ser Lys Asn Ala Glu Glu Ala Ala Ala Thr Ala Gly Ala Ala Thr
1105 1110 1115 1120

54

Val Ala Thr Ala Gly Thr Pro Ala Thr Gly Ala Ser Ala Ala Ser Ala
1125 1130 1135

Gly Glu Ala Thr Thr Ala Thr Gly Ala Thr Ala Thr Ala Ala Lys
1140 1145 1150

Gly Val Gly Lys Pro Glu Thr Ala Thr Glu Pro Ala Gly Thr Ala Ala
1155 1160 1165

Lys Gly Ala Asp Ser Arg Pro Asp Ala Asn Asp Pro Leu Ala Lys Thr
1170 1175 1180

Ala Ser Lys Ala Ile Asn Ala Glu Gly Tyr Asn Ala Ile Gly Gly Asn
1185 1190 1195 1200

Ser Ser Ser Ser Ser Ser Asn Ala Thr Gly Ala Ser Ala Pro Val Gln
1205 1210 1215

Gly Val Thr Leu Asn Gly Phe Lys Pro Gly Tyr Gln Thr Val Val Met
1220 1225 1230

Ala Asn Val Lys Ala Ser Thr Gly Gly Asp Asp Ser Gly Ala Asn Ala
1235 1240 1245

Gly Gly Ala Ala Pro Gly Ser Leu Ala Ala Thr Asn Ala Ser Ile Ala
1250 1255 1260

Thr Ser Gly Asp Lys Ile Val Lys Thr Thr Pro Ser Ser Arg Ala Pro
1265 1270 1275 1280

Asn Ser Thr Ser Ser Thr Ala Ala Asn Glu Ser Ser Ser Gly Ala Gly
1285 1290 1295

Val Asn Thr Tyr Gly His Thr Ala Thr Thr Ala Gly Asn Tyr Leu Gly
1300 1305 1310

Gln Lys Leu Lys Ala Ala Gln Val Glu Gly Leu Gly Ala Gly Asn Glu
1315 1320 1325

Leu His Ser Asp Val Ser Glu Ser Lys Arg Lys Arg Phe Glu Leu Asn
1330 1335 1340

Ser Gly Glu Ala Gly Gly Asn Ala Thr Ser Ala Met Thr Asn Ser Ser
1345 1350 1355 1360

Thr Ser Gly Ser Met Asn Ile Ser Asn Ser His Gly Leu Lys Ala Asn
1365 1370 1375

Ala Lys Asp Gly Ser Met Met Ala Lys Thr Ser Met Ala Ser Thr Ser
1380 1385 1390

Ser Ala Ser Val Val Val Thr Ser Thr Pro Ser Ala Ser Ser Ser Ser
1395 1400 1405

Leu Ser Ser Ala Ser Ser Met Leu Leu Ile Ser Ala Ala Ser Val Met
1410 1415 1420

55

Ser Thr Ala Ala Gly Ala Thr Ser Ser Ser Thr Ala Thr Thr Thr Ala
1425 1430 1435 1440

Thr Ala Ser Ala Ile Ser Leu Pro Leu Leu Ala Asp Gly Ser Gly Asn
1445 1450 1455

Ser Met Val Asn Ala Asn Glu Ile Leu Ala Leu Asp Gly Lys Asp Lys
1460 1465 1470

Leu Ala Ser Cys Phe Val Cys Lys Ala Glu Ala Cys Pro Arg Thr Arg
1475 1480 1485

Pro Leu Lys Lys Gly Arg Gly Gln Gln Tyr Gly Ile Pro Asp Glu Thr
1490 1495 1500

Ile Pro Ala Gly Ala Arg Val Cys Asn Ser Cys Gln Cys Lys Ser Val
1505 1510 1515 1520

Arg Ser Arg Tyr Pro Asn Cys Pro Leu Pro Thr Cys Pro Asn Pro Lys
1525 1530 1535

Asp Arg Ala Gln Arg Leu Arg Asn Ile Pro Ser Arg Leu Phe Glu Leu
1540 1545 1550

Ala Pro Glu Val Arg Asp Pro Leu Met Ala Glu Phe Gln Ile Pro Pro
1555 1560 1565

His Ala Thr Arg Cys Cys Ser Ala Cys Leu Met Arg Ile Arg Arg Lys
1570 1575 1580

Leu Asp Pro Gln Leu Asn Leu Thr Asp Gly Ser Ser Gly Gly Ala Gly
1585 1590 1595 1600

Ser Gly Ser Gly Gly Asp Glu Thr Asp Val Ser Thr Ser Ser Cys Asp
1605 1610 1615

Glu Arg Glu Pro Gly Gly Ser Asp Thr Ala Ser Val Glu Ser Pro Glu
1620 1625 1630

Asn Leu Gln Arg His Lys Ser Leu Thr Met Val Lys Gln Gln Gln Gln
1635 1640 1645

Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
1650 1655 1660

Gln Gln Gln Leu Ser Gln Pro Gln Pro Pro Pro Pro Ala Pro Gln Gln
1665 1670 1675 1680

Gln Lys Gly Ser Ser Gly Arg Gly Gly Asp Gln Gly Thr Pro Leu Ile
1685 1690 1695

Ile Thr Pro Thr Arg Met Ser Ser Lys Ser Gly Ser Gly Gly Ala Gln
1700 1705 1710

Thr Ala Gly Asp Asn Glu Arg Leu Leu Pro Pro Ala Ala Gly Gln Ala
1715 1720 1725

56

Pro Lys Lys Gln Lys Thr Ser Glu Glu Tyr Asp Ser Ser Ala Thr Glu
 1730 1735 1740
 Thr Ala Asp Glu Glu Asn Glu Asn Ser Pro Ala Asn Arg Gln Ser Pro
 1745 1750 1755 1760
 Lys Val Leu Phe His Gly His Gly His Gly His Gly Gly His Ala Asn
 1765 1770 1775
 Asn Val Ala Gly Leu Gln Pro Pro Val Ala Asn Met Gly Thr Gly Gly
 1780 1785 1790
 Gly Val Gln Pro Gly Gly Ala Ala Gly Gln Gln Val Asn Gly Pro Ile
 1795 1800 1805
 Ser Met Arg Arg Glu Ala Val Asn Asn Val Gln Asp Cys Val Phe Ser
 1810 1815 1820
 Val Ile Glu Arg Ser Leu Lys His Lys Gly Pro Gln Pro Lys Gly Gly
 1825 1830 1835 1840
 Gln Gly Gln Gln Gln Gly Gln Gly Gln Gly Gln Gly Gln Gly Gln Gly
 1845 1850 1855
 Gln Thr Pro Gly Gln Ser Gln Ser Pro Ser Gln Gln Gln Gln Gln Gln
 1860 1865 1870
 Gln Gln Gln Gln Ser Ala Asn Asn Leu Glu Arg Lys Glu Leu Thr Ile
 1875 1880 1885
 Val Arg Glu Tyr Arg Gln Asp Pro Gly Ile Leu Lys Gln Gln Gln Gln
 1890 1895 1900
 Gln Gln Gln Ala Gly Gly Ala Pro Pro Thr Ser Ala Ala Gly Ser Leu
 1905 1910 1915 1920
 Pro His Gly Thr Ser Val Gln Lys Leu Thr Thr Arg Pro Ala Ala Val
 1925 1930 1935
 Ala Pro Pro Pro Pro Ala His Pro Leu Thr Pro Thr Ser Ile Gly Cys
 1940 1945 1950
 Ala Gly Ser Asn Asn Gly Thr Ser Asp Ser Leu Ala Thr Leu Ser Val
 1955 1960 1965
 Val Asn Ser His Met Gly Met Val Gly Ile Gly His Pro Gly Pro Met
 1970 1975 1980
 Ala His Ala Ser Ser Ala Gly Gly Ile Gly Val Asp Lys Ala Thr Ile
 1985 1990 1995 2000
 Thr Pro Val Val Lys Ser Ser Ser Gly Ser Ser Lys Ser Gly Gly Gly
 2005 2010 2015
 Ser Ala Ser Ser His Ser Thr Ala Thr Pro Pro Glu Thr Ile Ile Tyr
 2020 2025 2030

57

Asn Val Pro Val Ala His Pro Gln Arg Gly Ile Pro Pro Pro Ser Gln
2035 2040 2045

His Ser Val His Pro Ala His Pro Ser His Thr Gln His Pro Ala His
2050 2055 2060

Pro Gln His Ser Ser His Gly Gln His Thr Gln Leu Gln Val Pro Glu
2065 2070 2075 2080

Pro Glu Pro Gln Thr Leu Asp Leu Ser Ile Lys Lys Pro Pro Arg Asp
2085 2090 2095

Gly His Ser Pro His Thr Gly Ala Gly Gly Ser Ser Ser Ser Gly Ser
2100 2105 2110

Gly Ser Gly Gly Pro Ser Ser Ser Asp Arg His His Gly Pro Pro Pro
2115 2120 2125

Pro Thr Met Ser Met Lys His Ile Val Arg Ser Gly Gly Met Tyr Arg
2130 2135 2140

Gly Asp Thr Val Thr Val Pro Ser Leu Ala Ala Pro Ser Ser Tyr Leu
2145 2150 2155 2160

Tyr Pro Thr Arg Ser Val Lys Ser Ile Gly Gly Gly Gly Val Val Pro
2165 2170 2175

Gly Val Leu Pro Gly Val Pro Gly Ile Ala Leu Tyr Leu Gln Pro Val
2180 2185 2190

Pro Val Pro Val Pro Ile Ser Ile Ser Gly Gln Gly Gln Leu Pro Pro
2195 2200 2205

Lys Ala Gly Gln Pro Pro Pro Ala Gln Pro Pro Ser Gly Arg Gly Val
2210 2215 2220

Ala Lys Val Pro Pro Lys Leu Ser Pro Gln Gln Ala His His Leu His
2225 2230 2235 2240

Pro Ser His Gly His Ser Pro Ser Gln Gln Gln Gln Gln Gln Gln
2245 2250 2255

Gln Gln Gln Gln Gln Gln Gln Gln Ala Ala Ala Ala Gln Gln Gln Leu
2260 2265 2270

Leu Val Lys Ser Gly Ser Ile Ile His Gly Thr Pro Ala Asn Ser Ala
2275 2280 2285

Gln Gln Gln Ile Ile Val His Ala Pro Ala Thr Ala Ala Ala Pro
2290 2295 2300

Ser Ser Leu Phe Ser Pro Lys Phe Asp Gly Leu Val Arg Gln Thr Thr
2305 2310 2315 2320

Pro Glu Gly Val Gly Ser Val Gly Pro Gly Gly Ala Ser Gly Ser Gly
2325 2330 2335

58

Lys His Gly Ser Ile Thr Gln Gly Thr Pro Leu His Met Pro Pro His
2340 2345 2350

His Leu Glu Ser Lys Arg Pro Tyr Glu Ser Tyr Tyr Lys Ser Ser Gln
2355 2360 2365

Arg His Ser Pro Ala Gln Gln Pro Gly Gly Asn Gln Gln Leu Pro Pro
2370 2375 2380

Pro Pro Gln Gln Ser Ser Pro Gln Ala Pro Pro Pro Gln Gly Tyr Gly
2385 2390 2395 2400

Val Gly Val Ser Ser Pro Tyr Ala Arg Ser Pro Phe Ala Gly Val Val
2405 2410 2415

Glu Gln Pro Gln Val Leu Ser Thr Arg Gln Ile Val Met His Asp Tyr
2420 2425 2430

Ile Thr Ser Gln Gln Met Gln Gly Gln Gln Gln Gln Gln Gln Gln
2435 2440 2445

Gln Gln Gln Gln Arg Asn Met Ser Arg Gly Ser Ser Ala Ser Gly Gly
2450 2455 2460

Gly Gly Gly Gly Gly Ser Asp Lys Glu Ser Pro Ser Pro Arg Asn Ser
2465 2470 2475 2480

Val Gly Ser Ala Ser Gly Phe Ala Tyr Gly Gly Asp Lys Glu Ser Ala
2485 2490 2495

Pro Arg Gly Arg Pro Glu Tyr Ser Ser Arg Ala Ser Pro Ala Asp His
2500 2505 2510

Val Asn Ser Thr Pro Ser Pro His Arg Thr Pro Pro Pro Gln Arg Gln
2515 2520 2525

Gly Val Ile Gln Arg His Asn Thr Gly Ser Lys Pro Pro Ser Pro Ala
2530 2535 2540

Ala Pro Pro Pro Ser Arg Met His Met Pro Pro Tyr Gln Tyr Ala Pro
2545 2550 2555 2560

Ser Gly His Asp Ala Leu Ala Ser Phe Val Asp Val Ala Val Gln Gln
2565 2570 2575

Pro Gln Leu Pro Val Pro Ser Gln Lys Asp Asp Lys Ser Pro Gly Pro
2580 2585 2590

Ser Thr Ala Pro Gly Gln Val Pro Gly Ser Gly Pro Pro Leu Gly Pro
2595 2600 2605

Ser Pro Leu Pro Pro His Ala Val Val Gly Val Ala Gln Pro Pro Pro
2610 2615 2620

Pro Thr Ala His His Asp Gln Arg Tyr Arg Asp Leu Thr Leu His His
2625 2630 2635 2640

59

His His His Thr Leu Val Gln Gln Gln Ile Ala Gln Gln Gln His Tyr
2645 2650 2655

Arg Ser Leu Asn Val Ala Ala Gln Val Asp Met Gln Arg Gln Met Asp
2660 2665 2670

Gln Ala Lys Arg Val Met Arg His Gln Gln His Gln Val Gln Gln Gln
2675 2680 2685

Gln Gln Gln Gln Gln Gln Gln Gln His Asn His Ala Leu Glu Arg Asp
2690 2695 2700

Arg Glu Met Gln Glu Arg Met Arg Glu Arg Asp Arg Glu Arg Glu Arg
2705 2710 2715 2720

Glu Arg Glu Arg Glu Gln Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu
2725 2730 2735

Arg Glu Arg Glu Arg Glu Arg Arg Glu Gln Asp Arg Ala Arg Arg Val
2740 2745 2750

Val Ala Glu Glu Arg Glu His Asp Ser Arg Arg Met Glu Arg Met Phe
2755 2760 2765

Ala Gly Asn Val Val Thr Gly Ser Gly Gly Ala Gly Gly Gly Gly Pro
2770 2775 2780

Ser Pro Gly Gln Phe Leu Arg Ala Ser Val Pro Glu Thr Gly Pro Pro
2785 2790 2795 2800

Arg Ser Ile Pro Asp Arg Glu Arg Glu Ser Tyr Tyr Arg Gln Ala His
2805 2810 2815

Gly Gly Pro Ala Pro Glu Asp Thr Pro Gly Gln Leu Ser Ala Gln Ser
2820 2825 2830

Leu Ile Asp Ala Ile Ile Lys His Glu Ile Asn Arg Ser Asn Asp Ala
2835 2840 2845

Thr Ala Gly Pro Gly Arg Glu Phe Pro Arg Pro Ser Phe Val His Ala
2850 2855 2860

Pro Leu Pro Pro Arg Gly Ser Gly Ser Gly Gly Gly Thr Gly Thr Arg
2865 2870 2875 2880

Ser Ser Pro Ala Asn Val Leu His Pro Met Tyr Leu Arg Asp Leu Arg
2885 2890 2895

Gln Pro Leu Asp Gly Gly Ala Gly Ser Met Leu Thr Ala Glu Asn Asn
2900 2905 2910

Gly Lys Pro Ser Ser Ser Gly Ser Pro Ser Val Ile Asn Ile Asp Leu
2915 2920 2925

Asp Gln Glu Arg Ile Ser Ala Ala Ala Ala Val Ala Gln Gln Gln
2930 2935 2940

60

Gln Gln Gln Gln Ala Pro Pro Pro Ser Gln Ser Ser Gln Ser Arg Ser
2945 2950 2955 2960

Val His Gly Gln Leu Arg Thr Pro Thr Ser Gln Ser Gly Gly Ser Ala
2965 2970 2975

Pro Ser Pro Gln Gln Ile His Thr Lys Ser Ile Thr Phe Gly Glu Leu
2980 2985 2990

Thr Asp Ser Ile Ile Thr Ser Asp Tyr Gly Thr Asn Pro His Leu Arg
2995 3000 3005

Pro Pro Tyr Met Ala Tyr Leu Gln Glu Thr Gln Ser Ile Leu Pro Pro
3010 3015 3020

Asp Arg Trp Lys Gln Asn Arg Arg Met Gln Gln Lys Ala Glu Glu Ala
3025 3030 3035 3040

Asn Asp His Ser Gln Gln Gln Gln Gln Gln Gln His Gln Gln Gln His
3045 3050 3055

His Ala Gln Gln Gln Gln Gln Gln Gln Gln Gln His His Ala Gln Gln
3060 3065 3070

His His Pro Gln Met Pro Gly Thr Gly Ser Gly Ser Ala Pro Gly Gly
3075 3080 3085

Ala Gly Gln Gly Gly Gly Ser Gly Gly Pro Gly Ser Gly Gly Gly Gly
3090 3095 3100

Ala Gly Arg Ala Ser Thr Pro Gly Glu Asp Gly Arg Asn Ile Ile Arg
3105 3110 3115 3120

Met Pro Gln Ala Val Ser Pro Arg Lys Phe Asn His Glu Met Met Leu
3125 3130 3135

His His Val Met Gly Thr Thr Gly Ala Gly Gly Glu Ala Gly Gln Phe
3140 3145 3150

Phe Leu Pro Ser Arg Val Val Leu Pro Glu Gln Arg Gly Thr Pro Ser
3155 3160 3165

Gly Gly Gly Gly Ala Pro Gly Ala Gly Gly Pro Gly Ser Gly Gly Gly
3170 3175 3180

Ala Thr Thr Ile Glu Lys Tyr Val Lys Thr Arg Ile Ala Glu Val Met
3185 3190 3195 3200

Arg Asp Asp Ile Gly Tyr Gly Lys Asn Arg Thr Val Glu Val Arg Thr
3205 3210 3215

Glu Asp Glu Val Thr Ala Asp Met Val Ala His Ser His Ala Ala Val
3220 3225 3230

His Ala Ala His Val Ala His Ala Ala His Val Ala His Ala Ala Ala
3235 3240 3245

61

Met Glu Leu Gln His Arg Ser Lys Glu Pro Pro Pro Glu Ile Ser
 3250 3255 3260

Val Ser Arg Lys Thr Pro Asn Gln Tyr Glu Val Val Asp Ala Ser Gly
 3265 3270 3275 3280

Arg Arg Ser Ala Gly Ser Gly Ser Val Ser Val Ser Val Ser Gly Ala
 3285 3290 3295

Asn Ser His His Ser Pro Tyr His Pro Pro Ala Ala Ala Tyr Ala Pro
 3300 3305 3310

Ser Thr Tyr Ala Phe Pro Tyr Ser Ala Leu Asn Val Pro Gly Ala Ala
 3315 3320 3325

Gly Gly Leu Pro Pro His Gln Pro Leu Gln Leu Ala His Gln Ala Val
 3330 3335 3340

Ala Pro Pro Gly Ala Phe Ala Lys Ala Lys Ala Ala His Ala Leu Ser
 3345 3350 3355 3360

Glu Leu Gly Ala Val Gly Gly Gly Val Ser Leu Val Val Gly Gly Gly
 3365 3370 3375

Ser Gly Gly Ile Ala Gly Gly Pro Gly Gly Val Ser Val Gly Val Gly
 3380 3385 3390

Val Pro Gly Gly Gly Gly Pro Gly Ser Gly Gly Gly Gly Gly Gly Gly
 3395 3400 3405

His Asn Ser Ser Ser Ser Gln Ala Ser Ala Ala Val Ala Ala Ala Val
 3410 3415 3420

Ala Ala Ala Ala Ser Glu Ser Lys Pro Leu Leu Leu Ser Lys Tyr Asp
 3425 3430 3435 3440

Ala Leu Ser Asp Glu Asp
 3445

<210> 13

<211> 9

<212> PRT

<213> Drosophila sp.

<400> 13

Met Ala Pro Lys Lys Lys Arg Lys Val
 1 5

<210> 14

<211> 51

<212> PRT

<213> Drosophila sp.

<400> 14

Phe Arg His Ile Thr Glu Ile Thr Ile Leu Thr Val Gln Leu Ile Val
 1 5 10 15

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<400> 17
Trp Glu Glu Phe Ser Met Ser Phe Thr Pro Ala Val Lys Glu Val Val
  1             5             10             15
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63

Glu Phe Ala Lys Arg Ile Pro Gly Phe Arg Asp Leu Ser Gln Hi Asp
 20 25 30

Gln Val Asn Leu Leu Lys Ala Gly Thr Phe Glu Val Leu Met Val Arg
 35 40 45

Phe Ala Ser
 50

<210> 18

<211> 275

<212> PRT

<213> Drosophila sp.

<400> 18

Lys Glu Asp Leu Leu Met Gln Ile Gln Lys Val Asp Asn Glu Ile Lys
 1 5 10 15

Ser Ala Glu Thr Thr Met Glu Thr Leu Arg Lys Lys Glu Lys Ser Leu
 20 25 30

Met Glu Glu Ala Ala Leu Ala Lys Glu Gln Arg Ala Ala Lys Glu Leu
 35 40 45

Asn Asp Asn Asn Asn Asp Gln Glu Pro Met Val Glu Leu Ser Trp Arg
 50 55 60

Ser Gln Met Leu Ala Glu Lys Ile Tyr Ala Ala Asn Arg Lys Thr Ala
 65 70 75 80

Gln Ala Gln His Ser Met Leu Gln Asn Ala Ala Ala Asp Glu Ser Ser
 85 90 95

Pro Gly Ser Val Ala Gly Arg Pro Trp Leu Pro Leu Tyr Asn Gln Pro
 100 105 110

Leu Asp Val Glu Ala Leu Ala Met Leu Ile Arg Gln His Gln Ser Gln
 115 120 125

Ile Arg Ala Pro Leu Leu Leu His Ile Arg Lys Leu Lys Ala Glu Arg
 130 135 140

Trp Ala His Asn Gln Gly Leu Val Glu Lys Tyr Thr Lys Asp Gln Ala
 145 150 155 160

Asp Trp Gln Arg Arg Cys Glu Arg Met Glu Ala Ser Ala Lys Arg Lys
 165 170 175

Ala Arg Glu Ala Lys Asn Arg Glu Phe Phe Glu Lys Val Phe Thr Glu
 180 185 190

Leu Arg Lys Gln Arg Glu Asp Lys Glu Arg Phe Asn Arg Val Gly Ser
 195 200 205

Arg Ile Lys Ser Glu Ala Asp Leu Glu Glu Ile Met Asp Gly Leu Gln
 210 215 220

64

Glu Gln Ala Leu Glu Asp Lys Lys Met Arg Ser Tyr Ala Val Ile Pro
 225 230 235 240

Pro Leu Met His Asp Ala Arg Gln Arg Arg Cys Ala Tyr His Asn Glu
 245 250 255

Asn Phe Leu Ile Glu Asp Met Val Ala Val His Gln Gln Arg Lys Ala
 260 265 270

Leu Asn Met
 275

<210> 19
 <211> 262
 <212> PRT
 <213> Mus sp.

<400> 19

Lys Glu Glu Leu Ile Gln Ser Met Asp Arg Val Asp Arg Glu Ile Ala
 1 5 10 15

Lys Val Glu Gln Gln Ile Leu Lys Leu Lys Lys Lys Gln Gln Gln Leu
 20 25 30

Glu Glu Glu Ala Ala Lys Pro Pro Glu Pro Glu Lys Pro Val Ser Pro
 35 40 45

Pro Pro Val Glu Gln Lys His Arg Ser Ile Val Gln Ile Ile Tyr Asp
 50 55 60

Glu Asn Arg Lys Lys Ala Glu Glu Ala His Lys Ile Phe Glu Gly Leu
 65 70 75 80

Gly Pro Lys Val Glu Leu Pro Leu Tyr Asn Gln Pro Ser Asp Thr Lys
 85 90 95

Val Tyr His Glu Asn Ile Lys Thr Asn Gln Val Met Arg Lys Lys Leu
 100 105 110

Ile Leu Phe Phe Lys Arg Arg Asn His Ala Arg Lys Gln Arg Glu Gln
 115 120 125

Lys Ile Cys Gln Arg Tyr Asp Gln Leu Met Glu Ala Trp Glu Lys Lys
 130 135 140

Val Asp Arg Ile Glu Asn Asn Pro Arg Arg Lys Ala Lys Glu Ser Lys
 145 150 155 160

Thr Arg Glu Tyr Tyr Glu Lys Gln Phe Pro Glu Ile Arg Lys Gln Arg
 165 170 175

Glu Gln Gln Glu Arg Phe Gln Arg Val Gly Gln Arg Gly Ala Gly Leu
 180 185 190

Ser Ala Thr Ile Ala Arg Ser Glu His Glu Ile Ser Glu Ile Ile Asp
 195 200 205

65

Gly Leu Ser Glu Gln Glu Asn Asn Glu Lys Gln Met Arg Gln Leu Ser
 210 215 220

Val Ile Pro Pro Met Met Phe Asp Ala Glu Gln Arg Arg Val Lys Phe
 225 230 235 240

Ile Asn Met Asn Gly Leu Met Glu Asp Pro Met Lys Val Tyr Lys Asp
 245 250 255

Arg Gln Phe Met Asn Val
 260

<210> 20
 <211> 263
 <212> PRT
 <213> Homo sapiens

<400> 20
 Lys Glu Glu Leu Ile Gln Asn Met Asp Arg Val Asp Arg Glu Ile Thr
 1 5 10 15

Met Val Glu Gln Gln Ile Ser Lys Leu Lys Lys Lys Gln Gln Gln Leu
 20 25 30

Glu Glu Glu Ala Ala Lys Pro Pro Glu Pro Glu Lys Pro Val Ser Pro
 35 40 45

Pro Pro Ile Glu Ser Lys His Arg Ser Leu Val Gln Ile Ile Tyr Asp
 50 55 60

Glu Asn Arg Lys Lys Ala Glu Ala Ala His Arg Ile Leu Glu Gly Leu
 65 70 75 80

Gly Pro Gln Val Glu Leu Pro Leu Tyr Asn Gln Pro Ser Asp Thr Arg
 85 90 95

Gln Tyr His Glu Asn Ile Lys Ile Asn Gln Ala Met Arg Lys Lys Leu
 100 105 110

Ile Leu Tyr Phe Lys Arg Arg Asn His Ala Arg Lys Gln Trp Lys Gln
 115 120 125

Lys Phe Cys Gln Arg Tyr Asp Gln Leu Met Glu Ala Leu Glu Lys Lys
 130 135 140

Val Glu Arg Ile Glu Asn Asn Pro Arg Arg Arg Ala Lys Glu Ser Lys
 145 150 155 160

Val Arg Glu Tyr Tyr Glu Lys Gln Phe Pro Glu Ile Arg Lys Gln Arg
 165 170 175

Glu Leu Gln Glu Arg Met Gln Ser Arg Val Gly Gln Arg Gly Ser Gly
 180 185 190

Leu Ser Met Ser Ala Ala Arg Ser Glu His Glu Val Ser Glu Ile Ile
 195 200 205

66

Asp Gly Leu Ser Glu Gln Glu Asn Leu Glu Lys Gln Met Arg Gln Leu
 210 215 220

Ala Val Ile Pro Pro Met Leu Tyr Asp Ala Asp Gln Gln Arg Ile Lys
 225 230 235 240

Phe Ile Asn Met Asn Gly Leu Met Ala Asp Pro Met Lys Val Tyr Lys
 245 250 255

Asp Arg Gln Val Met Asn Met
 260

<210> 21
 <211> 48
 <212> PRT
 <213> Drosophila sp.

<400> 21
 Trp Thr Ala Gly Glu Lys Glu Thr Phe Lys Glu Lys Tyr Leu Gln His
 1 5 10 15

Pro Lys Asn Phe Gly Ala Ile Ala Ala Ser Leu Asp Arg Lys Ser Pro
 20 25 30

Gln Asp Cys Val Arg Tyr Tyr Tyr Leu Ser Lys Lys Thr Glu Asn Tyr
 35 40 45

<210> 22
 <211> 48
 <212> PRT
 <213> Mus sp.

<400> 22
 Trp Thr Asp His Glu Lys Glu Ile Phe Lys Asp Lys Phe Ile Gln His
 1 5 10 15

Pro Lys Asn Phe Gly Leu Ile Ala Ser Tyr Leu Glu Arg Lys Ser Val
 20 25 30

Pro Asp Cys Val Leu Tyr Tyr Tyr Leu Thr Lys Lys Asn Glu Asn Tyr
 35 40 45

<210> 23
 <211> 48
 <212> PRT
 <213> Homo sapiens

<400> 23
 Trp Ser Glu Gln Glu Lys Glu Thr Phe Arg Glu Lys Phe Met Gln His
 1 5 10 15

Pro Lys Asn Phe Gly Leu Ile Ala Ser Phe Leu Glu Arg Lys Thr Val
 20 25 30

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<210> 27
<211> 48
<212> PRT
<213> Mus sp.
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68

<400> 27

Trp Thr Glu Glu Glu Met Glu Val Ala Lys Lys Gly Leu Val Glu His
 1 5 10 15

Gly Arg Asn Trp Ala Ala Ile Ala Lys Met Val Gly Thr Lys Ser Glu
 20 25 30

Ala Gln Cys Lys Asn Phe Tyr Phe Asn Tyr Lys Arg Arg His Asn Leu
 35 40 45

<210> 28

<211> 48

<212> PRT

<213> Homo sapiens

<400> 28

Trp Thr Glu Glu Glu Met Glu Thr Ala Lys Lys Gly Leu Leu Glu His
 1 5 10 15

Gly Arg Asn Trp Ser Ala Ile Ala Arg Met Val Gly Ser Lys Thr Val
 20 25 30

Ser Gln Cys Lys Asn Phe Tyr Phe Asn Tyr Lys Lys Arg Gln Asn Leu
 35 40 45

<210> 29

<211> 48

<212> PRT

<213> Homo sapiens

<400> 29

Trp Thr Val Glu Asp Lys Val Leu Phe Glu Gln Ala Phe Ser Phe His
 1 5 10 15

Gly Lys Thr Phe His Arg Ile Gln Gln Met Leu Pro Asp Lys Ser Ile
 20 25 30

Ala Ser Leu Val Lys Phe Tyr Tyr Ser Trp Lys Lys Thr Arg Thr Lys
 35 40 45

<210> 30

<211> 48

<212> PRT

<213> Caenorhabditis elegans

<400> 30

Trp Thr Asp Gln Glu Ile Thr Leu Phe Glu Asn Cys Tyr Gln Ile Phe
 1 5 10 15

Gly Lys Asn Phe Ser Gln Ile Arg Ser Ala Leu Cys His Arg Ser Leu
 20 25 30

Gln Ser Ile Val Gln Phe Tyr Tyr Glu Ser Lys Lys Arg Val Lys Tyr
 35 40 45

69

<210> 31
 <211> 49
 <212> PRT
 <213> *Saccharomyces* sp.

<400> 31
 Phe Thr Asp His Glu His Ser Leu Phe Leu Glu Gly Tyr Leu Ile His
 1 5 10 15
 Pro Lys Lys Phe Gly Lys Ile Ser His Tyr Met Gly Gly Leu Arg Ser
 20 25 30
 Pro Glu Glu Cys Val Leu His Tyr Tyr Arg Thr Lys Lys Thr Val Asn
 35 40 45
 Tyr

<210> 32
 <211> 16
 <212> PRT
 <213> *Drosophila* sp.

<400> 32
 Thr Arg Gln Ile Val Met His Asp Tyr Ile Thr Ser Gln Gln Met Gln
 1 5 10 15

<210> 33
 <211> 16
 <212> PRT
 <213> *Homo sapiens*

<400> 33
 Asn Arg Gln Thr Ile Ile Asn Asp Tyr Ile Thr Ser Gln Gln Met His
 1 5 10 15

<210> 34
 <211> 16
 <212> PRT
 <213> *Mus* sp.

<400> 34
 Thr Arg Gln Thr Ile Leu Asn Asp Tyr Ile Thr Ser Gln Gln Met Gln
 1 5 10 15

<210> 35
 <211> 17
 <212> PRT
 <213> *Drosophila* sp.

<400> 35
 Glu Ser Lys Pro Leu Leu Ser Lys Tyr Asp Ala Leu Ser Asp Glu
 1 5 10 15

70

Asp

<210> 36
 <211> 17
 <212> PRT
 <213> Homo sapiens

<400> 36
 Glu Pro Lys Pro Leu Leu Cys Ser Gln Tyr Glu Thr Leu Ser Asp Ser
 1 5 10 15

Glu

<210> 37
 <211> 18
 <212> PRT
 <213> Mus sp.

<400> 37
 Glu Pro Ala Pro Leu Leu Ser Ala Gln Tyr Glu Thr Leu Ser Asp Ser
 1 5 10 15

Asp Asp

<210> 38
 <211> 14
 <212> PRT
 <213> Drosophila sp.

<400> 38
 Val Lys Ser Gly Ser Ile Ile His Gly Thr Pro Ala Asn Ser
 1 5 10

<210> 39
 <211> 14
 <212> PRT
 <213> Drosophila sp.

<400> 39
 Gly Lys His Gly Ser Ile Thr Gln Gly Thr Pro Leu His Met
 1 5 10

<210> 40
 <211> 14
 <212> PRT
 <213> Homo sapiens

<400> 40
 Val Pro Gly Gly Ser Ile Thr Lys Gly Ile Pro Ser Thr Arg
 1 5 10

71

<210> 41
<211> 14
<212> PRT
<213> Homo sapiens

<400> 41
Thr Tyr Arg Gly Ser Ile Thr His Gly Thr Pro Ala Asp Val
1 5 10

<210> 42
<211> 14
<212> PRT
<213> Homo sapiens

<400> 42
His Ile Arg Gly Ser Ile Thr Gln Gly Ile Pro Arg Ser Tyr
1 5 10

<210> 43
<211> 14
<212> PRT
<213> Homo sapiens

<400> 43
Leu Lys Glu Gly Ser Ile Thr Gln Gly Thr Pro Leu Lys Tyr
1 5 10

<210> 44
<211> 14
<212> PRT
<213> Homo sapiens

<400> 44
Ser Ser Gly Gly Ser Ile Ala Arg Gly Ala Pro Val Ile Val
1 5 10

<210> 45
<211> 14
<212> PRT
<213> Mus sp.

<400> 45
Thr Pro Pro Gly Ser Ile Leu Ile Ser Ser Pro Ile Lys Pro
1 5 10

<210> 46
<211> 14
<212> PRT
<213> Mus sp.

<400> 46
Ile Met Gly Gly Ser Ile Ser Gln Gly Thr Pro Gly Thr Tyr
1 5 10

72

<210> 47
<211> 14
<212> PRT
<213> Mus sp.

<400> 47
Pro Ser Val Gly Ser Ile Ser Leu Gly Leu Pro Arg Gln Gln
1 5 10

<210> 48
<211> 14
<212> PRT
<213> Mus sp.

<400> 48
Val Gln Glu Gly Ser Ile Thr Arg Gly Thr Pro Ala Ser Lys
1 5 10

<210> 49
<211> 14
<212> PRT
<213> Mus sp.

<400> 49
Ser Leu Arg Gly Ser Ile Thr Gln Gly Thr Pro Ala Leu Pro
1 5 10

<210> 50
<211> 14
<212> PRT
<213> Mus sp.

<400> 50
Val Leu Ser Gly Ser Ile Met Gln Gly Thr Pro Arg Ala Thr
1 5 10

<210> 51
<211> 14
<212> PRT
<213> Mus sp.

<400> 51
Ile Ile Glu Gly Ser Ile Ser Gln Gly Thr Pro Ile Lys Phe
1 5 10

<210> 52
<211> 14
<212> PRT
<213> Caenorhabditis elegans

73

<400> 52

Gln Thr Gln Gly Ser Leu Thr Ser Gly Thr Pro Phe Gln Ala
1 5 10